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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/077,778	02/20/2002	Yoshinobu Higuchi	1450.1015	5137

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EXAMINER

PEUGH, BRIAN R

ART UNIT	PAPER NUMBER
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2187

DATE MAILED: 05/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/077,778

Applicant(s)

HIGUCHI ET AL.

Examiner

Brian R. Peugh

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 48-83 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 71-80 is/are allowed.
- 6) ☒ Claim(s) 48, 53-57 and 61 is/are rejected.
- 7) ☒ Claim(s) 49-52, 58-60, 62-70, 81, 82 and 85 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

This Office Action is in response to applicant's communication regarding the amendment of December 13, 2005. The previous Office has been withdrawn and replaced with the current Office Action.

Claim Objections

Claims 81 and 82 are objected to because of the following informalities:

Regarding claim 81, line 2: replace "controller." with --controller--.

Claim 82 is objected to as being depended upon a previously objected claim.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 48 and 53 are rejected under 35 U.S.C. 102(b) as being anticipated by Ziporovich (US# 5,737,342).

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Regarding claim 48, Ziporovich teaches a memory device, comprising: a nonvolatile memory [disk (12); Fig. 1; col. 5, line 40] connected to a first memory bus [bus from 74->50->54->etc.], and capable of storing data received thereby through said first memory bus [col. 6, lines 15-27]; a volatile memory [DRAM (72)] connected to a second memory bus [bus from 74->72], and capable of being random-accessed through said second memory bus [col. 6, lines 63-65]; and a controller [Drive ASIC (70)] having a first internal terminal connected to said first memory bus [inherently required for communication between (74) and (50)], a second internal terminal connected to said second memory bus [inherently required for communication between (74) and (72)], and an external terminal connected to an external bus [terminal inherent to interface (76) for external communication], said controller for transferring data between said nonvolatile memory and said volatile memory through said first and second internal terminals [although not specifically recited, bidirectional data flow control circuit/interface (50) directs data flow to the external circuitry (74, 72, 76) for read operations, col. 6, lines 15-27], wherein: when the data transfer is not performed, said controller controls to access from an exterior to said volatile memory through said external terminal and said second internal terminal, in accordance with an instruction through said external bus [col. 6, lines 15-27, and said controller performs error detection and/or correction processing in said data transfer [col. 6, line 59].

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Regarding claim 53, Ziporovich teaches that said nonvolatile memory, said volatile memory, and said controller are incorporated in a single package [hard disk drive; col. 4, lines 44-47].

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 54-56 and 61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ziporovich (US# 5,737,342) and Williams et al. (US#6,401,168).

Regarding claim 54, Ziporovich fails to teach a controller [capable of starting writing a plurality of data units in said volatile memory or said nonvolatile memory before said plurality of data units have been completely read out from said nonvolatile memory or said volatile memory data transfer between said nonvolatile memory and said volatile memory.

Williams et al. teaches a controller [controller circuit (10)] capable of starting writing a plurality of data units in said volatile memory or said nonvolatile memory (abs, lines 10-12; col. 4, lines 24-26) before said plurality of data units have been completely read out from said nonvolatile memory or said volatile

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memory data transfer between said nonvolatile memory and said volatile memory (abs., lines 13-20; col. 6, lines 20-32).

Therefore it would have been obvious to one of ordinary skill in the art having the teachings of Ziporovich and Williams et al. before him at the time the invention was made to modify the system of Ziporovich to include the timing system of Williams et al., because then the bottleneck associated with buffer managers could be alleviated (col. 2, lines 15-17).

Regarding claim 55, Ziporovich fails to teach said controller starts writing a plurality of data in said volatile memory before said plurality data units have been completely read out from said nonvolatile memory in data transfer from said nonvolatile memory to said volatile memory

Williams et al. teaches said controller starts writing a plurality of data in said volatile memory before said plurality data units have been completely read out from said nonvolatile memory in data transfer from said nonvolatile memory to said volatile memory (col. 7, lines 51-53 & 58-67; col. 8, lines 1-2).

Regarding claim 56, Ziporovich fails to teach said controller starts writing a plurality data units in said nonvolatile memory before said plurality of data units have been completely read out from said volatile memory data transfer from said volatile memory to said nonvolatile memory

Williams et al. teaches said controller starts writing a plurality data units in said nonvolatile memory before said plurality of data units have been completely

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read out from said volatile memory data transfer from said volatile memory to said nonvolatile memory (col. 6, lines 20-32).

Regarding claim 61, Ziporovich fails to teach said controller includes a buffer for buffering data and performs said data transfer through said buffer.

Williams et al. teaches said controller [10] includes a [FIFO] buffer for buffering data and performs said data transfer through said buffer (col. 4, lines 55-63).

Allowable Subject Matter

Claims 49-52, 58-60, 62-70, and 83 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 71-80 are allowed over the prior art of record.

Claims 81 and 82 are objected to as being dependent upon an objected parent claim, but would be allowable if rewritten incorporating the changes above and in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian R. Peugh whose telephone number is

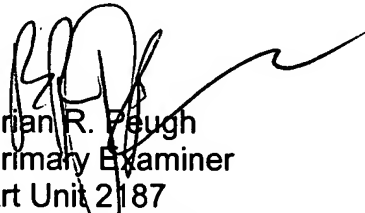
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(571) 272-4199. The examiner can normally be reached on Monday-Thursday from 7:00am to 4:30pm. The examiner can also be reached on alternate Friday's from 7:00am to 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Donald Sparks, can be reached on (571) 272-4201. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-2100.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Brian R. Peugh
Primary Examiner
Art Unit 2187
March 20, 2006